# Does EU membership prevent crowding out of public health care? Evidence from 28 transition countries

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**Does EU membership prevent crowding out of public health care?**

**Evidence from 28 transition countries**

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**Abstract**

This paper investigates changes in public health care use in 28 transition countries in the aftermath of the global financial crisis using data on more than 60 thousand households from "Life in Transition" surveys II and III conducted by the European Bank for Reconstruction and Development in 2010 and 2016. A difference-in-difference model with robust standard errors clustered at a country level is applied to two sets of transition countries defined by their membership status in the European Union. While there was no difference in public health care use between the two groups in 2010 the share of households using the public health care system dropped by a remarkable 22.2% points between 2010 and 2016 in non-EU transition countries compared to new EU members. There is also some evidence of crowding out of public health care with private out-of-pocket expenditures in non-EU members. These findings represent a serious policy concern in terms of falling access to health care in non-EU transition countries. If one believes in equity benefits from access to public health care for all compared to private out-of-pocket expenditures these results also demonstrates a clear benefit of EU membership.

## Introduction

Mixed public-private financing of health and education have been in the focus of economists' attention for a long time (Stiglitz 1974, Pardo and Schott 2012). Although public provision of health care predominates in most countries private health care often complements or substitutes for public finance (Buckley *et al.,* 2016). The discussion of mixed financing of health in the literature centers on efficiency versus equity in access to care. On the one hand, access to private providers can reduce long waiting lines in public health care system and improve the overall efficiency of the health care system (Cullis and Jones 1985, Hoel and Sæther 2003, Marchand and Schroyen 2005). On the other hand, such a mixed system can lead to cream-skimming (Barros and Olivella 2005, González 2005) when substitutable private services 'crowds out' public provision resulting in a lower overall health care provision (Brekke and Sørgard 2007).

Transition countries in this respect represent an interesting special case given that most of them initially adopted centrally-planned "Semashko" system with minor to no private sector involvement (Rechel and McKee 2009, Wagstaff and Moreno-Serra 2009). After the collapse of the Eastern Bloc in the beginning of the 1990s, transition countries started to implement elements of private health care (Waters *et al.* 2008).

From a theoretical point of view such a mixed provision is less costly than systems with a purely public monopoly and it also results in a welfare improvement compared to the strictly private regime (Jofre-Bonet 2000). At the same time, compared to a purely public system a mixed system of health care finance may result in higher health care prices with sicker and poorer people being left untreated (Buckley *et al.* 2012). Hence, it is important to study the evolution of transition countries from a purely public health financing model toward a mixed system.

Another important consideration is the initially high rate of public health care utilisation that characterises countries of the former Eastern Bloc (Chubrik *et al.,* 2011). For example, in 2010 according to the "Life in Transition II" survey 70% of the population in transition counties used public health care in the previous 12 months (Steves et al. 2011). By 2016 this rate dropped to 56% of the population in the 12 months prior to the "Life in Transition III" survey (European Bank for Reconstruction and Development 2016) which is much closer to the developed European countries (equal to 55% in Germany and 62% in Italy).

A number of policy related questions arises in respect to this major decline. What were the reasons for such a drastic decline in public health system use? Was this decline the same in all transition countries or did some large differences exist? Finally, what are the possible welfare implications of this reduction for equity in access to care?

To address these questions, this paper explores trends in public versus private health care use in the aftermath of the global financial crisis using data on more than 60 thousand households from the "Life in Transition" surveys II and III conducted in 28 transition nations in 2010 and 2016. For the purposes of this study, transition countries are divided into two relatively homogeneous

groups in terms of economic development and implemented reforms. Specifically, transition countries are differentiated on the basis of their EU membership status by arguing that more developed and reform-oriented countries became new EU members.[1]

The hypothesis to be tested is whether there is any change in population reliance on public health care in these two distinct groups of transition countries. The answer to this question is important for understanding the role of the government in coping with the consequences of the global financial crisis in terms of population access to care.

Descriptive statistics reveal a higher level of economic development as well as better public financing of health care in new EU member states. The results of the difference-in-difference estimation do not indicate any gap in public health care use between non-EU and new EU transition countries in 2010. However, the share of households using the public health care system dropped by a remarkable 22.1% points between 2010 and 2016 in non-EU transition countries compared to new EU members. There is also some evidence of crowding out of public health care with private out-of-pocket expenditures in non-EU members. These findings represent a serious policy concern in terms of falling access to health care in non-EU transition countries.

To the best of the author's knowledge this is the first paper that identifies such a substantial divergence in public health care use in two groups of transition countries. The reported results should be trustworthy because they are based on large nationally representative samples for all transition countries. In addition, using of robust standard errors clustered at country level provides the most reliable estimates which also survive multiple robustness checks in four different model specifications and three different sample definitions.

This paper is organised as follows. Firstly, the "Data and methods" section describes the "Life in Transition" survey and its methodology, defines outcome variables as well as included covariates

[1] Alternatively, one could divide transition countries on the basis of whether they adopted social health insurance (SHI) system or not. However, this differentiation does not seem indicative of health reforms because 22 out of 28 countries in the region have introduced systems of social health insurance (Rechel and McKee 2009).

and describes the estimation approach. Secondly, the "Results" section provides descriptive statistics, estimation results and robustness checks. Finally, the policy and welfare implications are discussed in the last section.

## Data and Methods

### The Life in Transition survey

This paper employs repeated cross-sectional data from the "Life in Transition" surveys II and III (LiTS II and LiTS III) conducted in 28 transition countries by the European Bank for Reconstruction and Development (EBRD) in 2010 and 2016.[2] "Life in Transition" is a nationally representative survey including all countries from a former Eastern Bloc and some other European countries for comparison. The LiTS III survey instrument was largely based on the LiTS II questionnaire consisting of nine modules with questions about the demographic and economic characteristics of the household, utilities and consumption patterns, work history and employment, values and attitudes, governance and use of public services (EBRD 2016). The survey was conducted by means of a multi-stage random probability clustered sampling stratified by geographical region and level of urbanity. Respondents are drawn randomly using a two-stage sampling method, with census enumeration areas as Primary Sampling Units and households as secondary sampling units (Grosjean 2014).[3] The "Life in Transition" survey data have been actively used in published research dealing with transition countries (Guriev and Zhuravskaya 2009; Cojocaru 2014; Djankov, Nikolova and Zilinsky 2016).

[2] Although "Life in Transition" survey I is also available for 2006 the formulation of the question was different: "During the past 12 months have you personally used these services?". Since 2010 and 2016 surveys asked about any household members (and not just the respondent) this paper does not include the 2006 data.

[3] LiTS III used 75 Primary Sampling Units (PSUs) including 50 PSUs from LiTS II and 25 new PSUs in an attempt to rebalance the old sample based on the updated population information (EBRD 2016).

**Outcome variables**

Three indicator variables are constructed to capture various forms of health care use by more than 60 thousand households in the final sample. The first variable, "Used any health care" takes a value of 1 if a household spent more than zero on the "Health (including medicines and health insurance)" category or any household member used public health care in the last 12 months.[4] This is the most broad category capturing public, private and mixed use of health care systems. This variable is further divided into separate disjoint indicators for public (or mixed) and private health care use.

The dummy variable "Used public health care" takes a value of 1 if any household member used public health care in the previous year and 0 otherwise.[5] Finally, it is also possible to identify households who did not use public health care but had positive out-of-pocket expenditures on private health care and medicines. Specifically, the variable "Used private health care only" takes a value of 1 if a household reported positive health care expenditures but did not use public health care in the previous 12 months and zero otherwise. 93.0% of households used any health care, while 62.3% applied for public (and mixed) health care and 28.5% for private health care only in 2016.

**Estimation approach**

In order to quantify the crowding out of public health care in non-EU transition countries this paper uses a linear probability model with robust standard errors clustered at the country level. Specifically, let *"HH used* $HC_{it}$*"* be a dummy variable taking a value of 1 for household *i* that used health care in the period *t*, modeled as difference-in-difference

[4] The exact question formulation is: "And approximately how much did your household spend on each of these items during the past 12 months?"

[5] The exact question formulation is: "During the past 12 months have you or any member of your household used these services? Receive medical treatment in the public health system". This variable identifies those households which definitely used public health care but in addition could have out-of-pocket expenditures on private health care. Only 2.1% of households used public health care with zero out-of-pocket expenditures.

$$HH\ used\ HC_{it} = a + \beta X_{it} + \delta D_{2016} + \varepsilon D_{Non\text{-}EU} + \zeta D_{2016} * D_{Non\text{-}EU} + \eta_{it}. \quad (1)$$

Equation (1) represents a basic model including only exogenous socio-demographic characteristics of a household in a vector $X_{it}$ from the "Life in Transition" survey: household size and age of the primary respondent, including squared terms to capture non-linearity; number of children under 18 and older adults over 60 years old in the household; indicator variables for respondent with post-secondary education and higher education; an indicator variable for urban households.

In addition, this paper estimates a full model

$$HH\ used\ HC_{it} = \theta + \lambda Z_{it} + \mu W_t + \nu D_{2016} + \xi D_{Non\text{-}EU} + \pi D_{2016} * D_{Non\text{-}EU} + \varrho_{it}, \quad (2)$$

where $Z_{it}$ includes all variables in $X_{it}$ and a set of socio-economic variables and $W_t$ includes economy-wide characteristics from World Development Indicators by the World Bank which are lagged 2 years due to data not yet being available for 2015 and 2016. Socio-economic variables are indicator variables for households living in a detached house or apartment; households with a car, households owning a computer at home and having internet access.

Macroeconomic variables from World Development Indicators include Gross Domestic Product (GDP) per capita in constant Purchasing Power Parity (PPP) 100 dollars; PPP exchange rate devaluation over the last 4 years; unemployment in % from International Labour Organization (ILO); urban population in %; DPT immunization among 12-23 month old children; health expenditure (HE) per capita in constant $100 PPP; out-of-pocket health expenditure as a percentage of the total HE; public health expenditure as a percentage in the total HE; public HE as a percentage of government expenditure.

The global financial crisis could have affected health care utilisation indirectly through changes in household economic characteristics, making them potentially endogenous. To ensure that results are robust to this potential endogeneity problem this paper reports coefficients from a basic model (including only exogenous demographic variables) and estimates from a full model.[6]

[6] This comparison is also helpful to ensure that potential multicollinearity (i.e., owning a computer and having internet access at home) is not driving results either.

Both models also include a set of dummy variables capturing potentially diverging trends in health care use by EU and non-EU countries. Specifically, $D_{2016}$ is an indicator variable taking a value of 1 if the observation year is 2016 and 0 if it is 2010. $D_{Non\text{-}EU}$ is a dummy variable equal to 1 for transition countries which are not members of the European Union and 0 for EU transition countries.[7] In this formulation, the key coefficient of interest is on a cross-term $D_{2016}*D_{Non\text{-}EU}$ showing how health care use in non-EU transition countries in 2016 was different from other region-year combinations (Coupe and Obrizan 2016).

## Results

### Descriptive statistics

This paper argues that transition countries could be divided into two relatively homogeneous groups based on their EU membership status and Table 1 substantiates this claim. Specifically, Table 1 provides means and standard deviations for all covariates for four disjoint sets of countries defined by EU membership status and year of survey.

Some important socio-demographic differences between new EU members and other transition countries exist. Households from transition countries in the EU are smaller and more likely to live in a city, have fewer children and more adults over the age of 60. These results are expected for more developed transition countries in the EU. Lower numbers of respondents with post-secondary and higher education look surprising at first but can also be explained by the lower quality of education and a large number of "diploma mills" in many of the former Soviet Union republics. Similarly, socio-economic variables indicate a higher level of development of new EU members based on a larger share of households living in apartments, owning a car, having a computer and access to the internet.

[7] In 2016 non-EU transition countries included Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Kazakhstan, Kosovo, Kyrgyz Republic, Macedonia FYR, Moldova, Mongolia, Montenegro, Russian Federation, Serbia, Tajikistan, Ukraine and Uzbekistan. Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia were EU members in 2016. The list of transition countries is a standard one following the literature (see, for example, Guriev and Zhuravskaya 2009).

Table 1. Descriptive statistics for covariates divided by EU membership status and year

| Variable | non EU in 2010 | EU in 2010 | non EU in 2016 | EU in 2016 |
|---|---|---|---|---|
| Household size | 3.489 | 2.492 | 3.302 | 2.229 |
| | (1.871) | (1.300) | (1.827) | (1.238) |
| Household size squared | 15.673 | 7.902 | 14.242 | 6.499 |
| | (17.298) | (8.550) | (16.166) | (7.985) |
| Respondent age | 50.646 | 51.372 | 45.828 | 52.817 |
| | (15.380) | (16.261) | (16.583) | (17.902) |
| Respondent age squared | 2801.513 | 2903.466 | 2375.165 | 3110.136 |
| | (1611.473) | (1714.054) | (1624.299) | (1901.446) |
| Number of children under 18 | 0.772 | 0.425 | 0.828 | 0.355 |
| | (1.072) | (0.784) | (1.125) | (0.761) |
| Number of older adults | 0.493 | 0.535 | 0.494 | 0.653 |
| over 60 | (0.717) | (0.743) | (0.722) | (0.773) |
| Respondent with post- | 0.200 | 0.143 | 0.173 | 0.128 |
| secondary education | (0.400) | (0.350) | (0.379) | (0.334) |
| Respondent with | 0.205 | 0.179 | 0.258 | 0.222 |
| higher education | (0.404) | (0.384) | (0.437) | (0.415) |
| Urban household | 0.551 | 0.630 | 0.541 | 0.570 |
| | (0.497) | (0.483) | (0.498) | (0.495) |
| Living in a detached house | 0.527 | 0.440 | 0.660 | 0.461 |
| | (0.499) | (0.496) | (0.474) | (0.498) |
| Living in an apartment | 0.386 | 0.516 | 0.249 | 0.393 |
| | (0.487) | (0.500) | (0.432) | (0.488) |
| Household with a car | 0.420 | 0.571 | 0.462 | 0.598 |
| | (0.494) | (0.495) | (0.499) | (0.490) |
| Household with a computer | 0.402 | 0.614 | 0.601 | 0.674 |
| | (0.490) | (0.487) | (0.490) | (0.469) |
| Household with internet | 0.292 | 0.556 | 0.596 | 0.674 |
| | (0.455) | (0.497) | (0.491) | (0.469) |
| GDP per capita, constant | 107.925 | 233.285 | 113.262 | 240.764 |
| 100 PPP $ | (62.979) | (43.587) | (61.236) | (38.801) |
| PPP exchange rate devaluation | 37.962 | -0.135 | 38.378 | -0.192 |
| over last 4 years | (33.909) | (5.805) | (32.763) | (5.650) |
| ILO estimate of unemployment | 11.699 | 6.387 | 12.311 | 10.030 |
| in % | (7.233) | (1.506) | (7.875) | (2.936) |
| Urban population, % | 54.318 | 63.422 | 54.823 | 63.283 |
| | (13.214) | (7.476) | (13.935) | (7.905) |
| DPT immunization among | 93.613 | 97.014 | 90.189 | 94.832 |
| 12-23 month old children | (4.606) | (1.877) | (17.254) | (3.186) |
| Health expenditure per | 6.663 | 14.133 | 7.636 | 17.170 |
| capita, constant 100 PPP $ | (3.955) | (4.692) | (4.135) | (4.769) |
| Out-of-pocket health | 43.325 | 24.067 | 45.416 | 23.658 |
| expenditure, % of total | (14.082) | (8.041) | (10.754) | (9.655) |
| Public health expenditure, | 52.815 | 71.669 | 50.366 | 72.071 |
| % in total HE | (16.399) | (7.361) | (14.083) | (8.571) |
| Public HE, % of | 9.820 | 12.087 | 10.028 | 12.559 |
| government expenditure | (3.356) | (1.698) | (3.099) | (1.777) |
| Observations | 21317 | 10698 | 26671 | 16529 |

*Sample statistics are based on the largest possible sample of 75,215 observations. Standard deviations are in parenthesis. Macroeconomic variables are lagged 2 years due to data not yet being available for 2015 and 2016.*

Most importantly, in 2010 new EU members had much better macroeconomic outcomes and a much higher share of public health care financing compared to other transition countries. Specifically, this advantage includes GDP per capita in constant PPP dollars ($23,328.5 vs $10,792.5), ILO unemployment rate (6.4% vs 11.7%), health expenditures per capita ($1,412.3 vs $666.3), out-of-pocket health expenditures (24.1% vs 43.3%), public health care expenditure in total HE (71.7% vs 52.8%) and public health care expenditure in total government expenditure (12.1% vs 9.8%). In a later section this paper will discuss how changes in public health care financing between 2010 and 2016 could relate to observed public health care utilisation changes.

**Changes in public health care use**

Figure 1 shows changes in public and private health care utilisation by households between 2010 and 2016. The top left quadrant includes countries (6 new EU members and only one non-EU transition country of Armenia) with fewer households using private health care alone and more households using public health care in 2016 compared to 2010. The bottom right quadrant, on the other hand, includes 5 new EU members (mostly less developed ones) and 15 non-EU transition countries with fewer households using public health care and more relying on private health care and pharmacies in 2016 compared to 2010. This figure is indicative of some tectonic reductions in household reliance on public health care systems in non-EU member countries in the aftermath of the global financial crisis. The next section relies on regression analysis to quantify this change controlling for changes in potential determinants of health care use between two repeated cross-sections of data.

[Figure 1 about here]

Table 2 presents the results of difference-in-difference estimation for any health care use (columns I and II), public (columns III and IV) and private health care use alone (columns V and VI). The discussion of results focuses on full models (columns II, IV and VI) because coefficients in basic

models are quantitatively very similar. This similarity indicates that results are not driven by potential endogeneity of some socio-economic characteristics or their multicollinearity.

According to the estimates from model (II), households from non-EU transition countries were 6% points less likely to use any health care in 2010 without any change by 2016. However, model (IV) shows a tremendous decline of 22.1% points in the share of households using public health care in non-EU transition countries in 2016 compared to other region-year combinations. This substantial decline was partially offset by an increase in private health care use as indicated by model (VI). Specifically, in 2010 households in non-EU countries were 11.0% less likely to have positive private health care expenditures only compared to EU members. The difference has reversed by 2016 with non-EU transition countries being 7.1% more likely (p-value of 6.0%) to use private health care compared to new EU members. This evidence shows a major shift in non-EU transition countries away from public health care provision towards private health care facilities and pharmacies.

Table 2. Regression results clustered at the country level with robust standard errors

| | HH used any HC | HH used any HC | HH used public HC | HH used public HC | HH used private HC | HH used private HC |
|---|---|---|---|---|---|---|
| | (I) | (II) | (III) | (IV) | (V) | (VI) |
| Dummy for 2016 | -0.008 | -0.011 | 0.004 | 0.002 | -0.000 | 0.004 |
| | (0.009) | (0.018) | (0.042) | (0.047) | (0.034) | (0.035) |
| Dummy for non-EU country | -0.037** | -0.060*** | 0.013 | 0.053 | -0.045 | -0.110*** |
| | (0.014) | (0.019) | (0.041) | (0.044) | (0.033) | (0.039) |
| Dummy for non-EU country | -0.009 | -0.012 | -0.205*** | -0.221*** | 0.178*** | 0.182*** |
| in 2016 | (0.012) | (0.018) | (0.055) | (0.061) | (0.048) | (0.050) |
| Household size | 0.040*** | 0.044*** | 0.039*** | 0.045*** | 0.001 | -0.003 |
| | (0.004) | (0.004) | (0.007) | (0.007) | (0.006) | (0.007) |
| Household size squared | -0.003*** | -0.004*** | -0.003*** | -0.004*** | -0.000 | 0.000 |
| | (0.000) | (0.000) | (0.001) | (0.001) | (0.001) | (0.001) |
| Respondent age | 0.001** | 0.001** | 0.002 | 0.002** | 0.000 | -0.000 |
| | (0.000) | (0.000) | (0.001) | (0.001) | (0.001) | (0.001) |
| Number of children under 18 | 0.010*** | 0.009*** | 0.026*** | 0.029*** | -0.011* | -0.015** |
| | (0.003) | (0.002) | (0.007) | (0.007) | (0.006) | (0.005) |
| Number of older adults | 0.018*** | 0.020*** | 0.037*** | 0.039*** | -0.018*** | -0.017*** |
| over 60 | (0.003) | (0.004) | (0.005) | (0.004) | (0.004) | (0.003) |
| Respondent with post- | 0.019** | 0.010** | 0.039** | 0.030** | -0.016 | -0.021** |
| secondary education | (0.008) | (0.005) | (0.016) | (0.011) | (0.014) | (0.010) |
| Respondent with | 0.018*** | 0.013*** | 0.041*** | 0.033*** | -0.017 | -0.019** |
| higher education | (0.006) | (0.004) | (0.013) | (0.009) | (0.011) | (0.008) |
| Urban household | -0.008 | -0.009 | 0.022** | -0.000 | -0.028*** | -0.010 |
| | (0.006) | (0.007) | (0.010) | (0.013) | (0.009) | (0.011) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Living in an apartment | | 0.011 | | 0.049*** | | -0.032* |
| | | (0.008) | | (0.015) | | (0.016) |
| Household with internet | | 0.004 | | 0.024*** | | -0.016* |
| | | (0.005) | | (0.008) | | (0.008) |
| GDP per capita, constant | | 0.000 | | 0.001** | | -0.001** |
| 100 PPP $ | | (0.000) | | (0.001) | | (0.000) |
| Health expenditure per | | -0.003 | | -0.009 | | 0.003 |
| capita, constant 100 PPP $ | | (0.003) | | (0.008) | | (0.006) |
| Out-of-pocket health | | -0.003* | | -0.001 | | -0.005 |
| expenditure, % of total | | (0.001) | | (0.004) | | (0.003) |
| Public health expenditure, | | -0.004*** | | -0.004 | | -0.002 |
| % in total HE | | (0.001) | | (0.003) | | (0.003) |
| Public HE, % of | | 0.014*** | | 0.023*** | | -0.007 |
| government expenditure | | (0.004) | | (0.007) | | (0.006) |
| Constant | 0.806*** | 0.879*** | 0.450*** | 0.262 | 0.309*** | 0.731*** |
| | (0.024) | (0.115) | (0.046) | (0.314) | (0.038) | (0.259) |
| Observations | 65970 | 63779 | 75215 | 72672 | 65970 | 63779 |
| Adjusted R-squared | 0.028 | 0.043 | 0.054 | 0.070 | 0.031 | 0.045 |

** p<0.10, ** p<0.05, *** p<0.01. Standard errors in parentheses. All models also control for respondent age squared. Full models in addition control for those who live in a detached house; PPP exchange rate devaluation over 4 years; ILO estimate of unemployment; percent of urban population; DPT immunization rate among children of 12-23 months old. The variables are not significant in most or all cases and are not shown to save space.*

The probability of public or any health care use increases for bigger households, households with more children and older adults and a better educated primary respondent. There is some marginal evidence of lower probability of positive private health care expenditures only for households with more children and older adults as well as a better educated primary respondent. Results are robust to inclusion of multiple country-wide macroeconomic variables which are not significant in most cases with one notable exception. Each percentage point increase in the share of public HE in total government expenditure is associated with a 1.4% points higher probability of using any health care and a 2.3% points higher share of households relying on public health care. The negative effect of public health expenditure in the total HE is quantitatively small and not robust across specifications.

**Robustness checks**

A number of additional models have been estimated in robustness checks. Specifically, sets of models with (i) only difference-in-difference dummies and (ii) all covariates except for macroeconomic variables produce coefficients which are very similar to those reported in Table

2. An attentive reader has also observed that there are about 10 thousand more observations in a model for public health care use (columns III and IV) compared to the other two types of health care use. This happens because of many missing observations for household health care expenditures which is, by the way, not equivalent to 0 expenditures on health. Since many economists are skeptical about imputing missing observations this paper takes a different route and re-estimates models in columns (III) and (IV) for the same sample as in columns (I) and (II). The results carry over to this extension as well. An attentive reader may also suspect that results are driven by transition countries that are located far away from geographical Europe (like Mongolia). They are not. After excluding countries in central Asia (Kazakhstan, Kyrgyz Republic, Tajikistan, Uzbekistan and Mongolia) key coefficients remain virtually unaffected.[8] All these extensive robustness checks confirm that diverging trends in health care use in EU and non-EU transition countries are fairly robust in four different model specifications and three different sample definitions.[9]

## Discussion and conclusions

Health care systems in transition countries (that under the "Semashko" system provided universal coverage and free health care services at point of use) suffered from two major shocks after the collapse of communism. Fiscal shock reduced the ability of governments to spend on health care while integration into the world economy increased relative prices, particularly for medicines and energy (Kutzin, Jakab and Cashin 2010). As a result, formal and informal out-of-pocket payments became a major part of total health expenditure in many transition countries (Rechel and McKee 2009).

This paper shows that transition countries do not represent a homogeneous group with more developed new members of the European Union being able to preserve public health care systems

[8] Except for the non-EU dummy which becomes insignificant in model II, likely due to a smaller sample.
[9] The results of robustness checks are not provided to save space but are available upon request.

while less reformed non-EU members experiencing a substantial reduction in public health care use in the aftermath of the global financial crisis.

Careful investigation of descriptive statistics reveals an interesting observation: transition countries not belonging to the EU suffered from an increased burden of out-of-pocket expenditures in health care financing in the aftermath of the global financial crisis between 2010 and 2016. Specifically, by 2016 the share of out-of-pocket expenditures increased while the share of public health care expenditure decreased in non-EU transition countries, with the opposite trend for new EU members. This deterioration of public financing in non-EU transition countries could further exacerbate the problem of informal payments and worsen access to care.

Even in new European Union member states, under-the-counter payments might prevent necessary reforms (Gulácsi 2007) and often provide compensation for the relatively low salaries of health care professionals. The situation seems to be much worse in most non-EU transition countries despite the fact that the constitution guarantees free medical care in several countries of the former Soviet Union. In reality, most respondents who obtained care had to make out-of-pocket payments with median amounts varying from $13 in Belarus to $100 in Azerbaijan (Balabanova *et al. 2012*). What is worse, half of respondents did not seek medical care despite health problems and cost is the most cited reason for that (Balabanova *et al. 2012*).

Informal payments may also limit access to public health care systems in less reformed non-EU transition countries, as indicated by an increased reliance on self-care and traditional healers in the Caucasus, central Asia, Republic of Moldova and Ukraine with formal medical care serving only as a last resort (Gotsadze, Zoidze and Vasadze 2005, Rechel and McKee 2009).

If one believes in equity benefits from access to public health care for all compared to private out-of-pocket expenditures on health care, this paper demonstrates a clear benefit of EU membership and associated market reforms.

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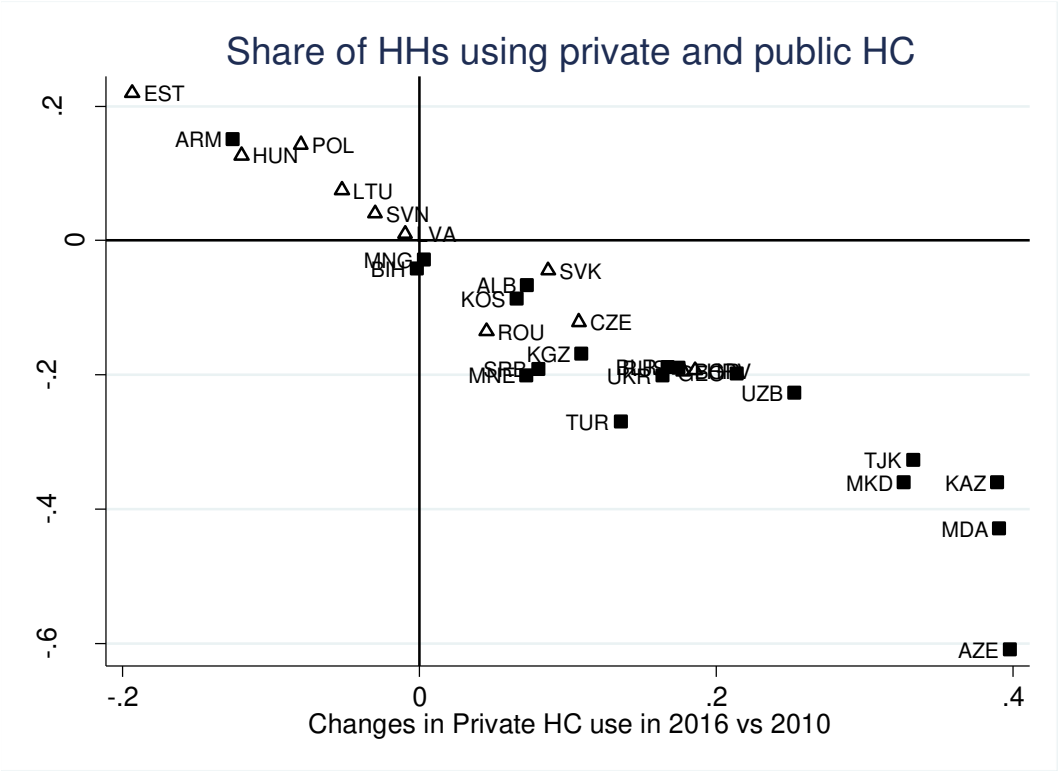


Figure 1. Changes in the utilisation of public and private health care by transition countries between 2010 and 2016.

*Each point represents the difference between the share of households using private (horizontal axis) and public health care (vertical axis) in 2016 and 2010. Squares represent transition countries that were not EU members in 2016. Triangles represent transition countries that were in the EU in 2016.*